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Etude sur les Grenouilles Rousses *Ranae* Temporariae et Descriptions d'Espèces Nouvelles ou Inconnues. Par G. A. Boulenger. (Ext. Bull. Soc. Zool. de France pour 1879.) 8vo, pp. 38. From the author.

The Plowshare. By Henry M. Parkhurst. Vol. xxxii, No. 3. 16mo, July, 1880. From the editor.

On the Zoölogical Position of Texas. By Edw. D. Cope. (From Bull. U. S. Nat. Museum.) 8vo, pp. 51, August 1st, 1880. From the author.

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GENERAL NOTES.

BOTANY.

CONTRIVANCES FOR CROSS-FERTILIZATION IN THE *RANUNCULACEÆ*.—In *Ranunculus* the stamens near the honey pores are adnate-extrorse to scatter pollen upon insects as they take honey. The receptacle is elongated to elevate the ovaries and furnish a firm, conspicuous platform, so that insects will first alight upon them. An elongation of the styles simply would not accomplish the purpose.

In *Aquilegia* the pollen is very rarely if ever discharged till the anthers are beyond the stigmas. As the flowers are pendant this prevents its falling upon the stigmas even if they were prepared to receive it. The spurred petals are placed on all sides of the stamens so that in passing from spur to spur the stamens are almost sure to be brushed. After the stamens have all discharged, the styles then elongate and the feathery stigmas open and curve sidewise so as to bring themselves before the mouths of the petals and at about the same distance at which the anthers were in the staminate stage of the flower.

I have seen humming birds visit the columbines and they seem especially adapted to fertilize them.

In *Delphinium* one sepal is spurred and two petals are utilized to make the stiff rim for its mouth. Two other petals, or in some species projections from the two already mentioned, serve as a kind of apron to protect the stamens and pistils till each is fully mature. The stamens are first to become so; at which time, by an elongation and bending of the filaments, each anther is brought from under the petals and placed before the mouth of the spur. After discharging pollen, each is withdrawn by a contrary movement of the filament. In a similar way, after the stamens are through, the stigmas are brought into the same position.

In both *Aquilegia* and *Delphinium* the outer stamens mature first, the inner meanwhile forming a sheath for covering the pistils. The degrees of complexity in these flowers and the intermediate position of *Aquilegia* need only to be mentioned to be readily

seen. Delphinium may be considered the highest and latest developed type of the three, and *D. consolida* would seem to be of later origin than *D. tricomé* and others. Aconitum may be a stage between Delphinium and Aquilegia.

The history of these different structures, the spur, the automatic filaments, etc., offers a very attractive field of investigation. The Ranunculaceæ, on account of their wide distribution, great numbers and variety of forms, seem especially favorable for studying this branch of vital dynamics.—*J. E. Todd, Tabor College, Iowa.*

BOTANICAL NOTES.—The process of fertilization of the tulip by Halictus bees is described in the *American Entomologist* for June, by W. H. Patton, who questions whether the nectar is poisonous, as stated in Miss Staveland's "British Insects."—The fertilization of *Cobæa penduliflora* of South America is effected, says A. Ernst, in *Nature*, by large Sphinx moths, and no flower gave a fruit without having its stigmata pollenized by crossing, self-fertilization being therefore excluded; he also confirms Bonnier's statement that the nectar is of no direct advantage to the plant.—In this connection may be mentioned the excellent treatise of Mr. William Trelease on nectar, its nature, occurrence and uses, which appears in the report on cotton insects issued by the Agricultural Department, and which we notice in another place.—Dr. H. Müller continues in *Kosmos* (iv, Heft 4, July, 1880) his series of papers on the relation of Alpine flowers to the theory of the production of flowers.—Dr. Eberth describes a Bacillus which he claims caused the death of a badger, the bacilli appearing to actively excite inflammation, the animal dying after a few days' illness, showing no other symptoms than decrease of appetite and weakness. The disease germs appeared in the liver, sections of the capillaries being crowded with them.—Mr. W. T. T. Dyer contributes to Trimen's *Journal of Botany* an article on Lattakia tobacco, which owes its flavor to being smoked with the wood of an oak, *Quercus ruber* var.

ZOÖLOGY.¹

A NEW HARVESTING ANT.—We have a true harvesting ant, it appears, at our very doors. In Vineland they are on every street, in every yard. At Island Heights, Ocean Grove, also, and Asbury Park, they are very numerous. A very large colony may be seen on the lawn opposite the Arlington House, at the former place. I have not looked for them farther north, but have no doubt they will be found generally in our latitude.

It is a small ant, the worker being about a line long. It is of a red-

¹ The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.